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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/829,626

Applicant(s)

BARSNESS ET AL.

Examiner

Caroline Arcos

Art Unit

2195

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 22 April 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-20 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 22 April 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☐ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____
- ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- ☐ Notice of Informal Patent Application
- ☐ Other: _____

DETAILED ACTION

1. Claims 1-20 are pending for examination.

Claim Objections

2. Claim 14 is objected to because it is dependant on an upcoming claim.
3. Claim 15 is objected to because it cannot depend on itself.

Appropriate correction is required.

Claim Rejections - 35 USC § 101

1. 35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

2. Claims 1-5, 6-9, 10-12, 13-15 and 16-20 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory matter.
3. As per claims 1-5, 6-9, 10-12, 13-15 and 16-20, the claims are non-statutory as they fail to produce a "useful, concrete, and tangible result." the claims are directed to collecting performance data and determination of a condition but there is no tangible result to these claims. *State Street Bank & Trust Co. V. Signature Financial Group Inc.*, 149 F. 3d 1368, 1373-74 (Fed. Cir. 1998).the claims are directed to nothing more than an algorithm, failing to indicate how the invention accomplishes a practical application. That is, the

claims fall under the juridical exception for an "abstract idea" i.e. an algorithm, which is ineligible for patent protection. *Diamond V. Diehr*, 450 U.S. 175, 185 (1981).

4. As per claims 6-9, the claimed apparatus are software per se as they are not tangibly embodied on any sort of physical medium. The claims recite "means", but the limitation is described as being software in the specification. Specifically, it is stated at page 12, lines 3-6 of the specification.
5. As per claims 10-12, they are not limited to tangible embodiments. In view of applicant's disclosure, specification page 12, lines 17-26, the medium is not limited to tangible embodiments, instead being tangible embodiments (e.g., a read only memory, CD-ROM, hard disk drive, diskette) and intangible embodiments (e.g., communications medium, telephone network, wireless communications). In addition, the claimed signal bearing medium is software per se, as they are not tangibly embodied in any sort of physical medium. The claims recite "a signal bearing medium" that is encoded and carried on by series of instructions. This limitation is described in the specification on page 12 lines 14-16.

Claim Rejections – 35 USC § 112

6. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

7. Claims 1-20 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

a. The following terms lacks antecedent basis:

i. The second – claim 5, claim 15.

b. The claim language in the following claims is not clearly understood:

i. As per claim1, line 4, it is unclear what type of "performance metric" is being collected. It is not clear if this performance metric is of software or hardware performance.

Line 5, it is not clear the meaning of "performance metric occurs when the first partition is an only partition" it is not clearly understood if the performance metric runs only when there is one partition only in the computer or does it run on the start up before a second partition is added .

ii. As per claim Line 2, it is not clear whether "average number of cycles per instruction for the first partition" is the CPI of total the jobs reside on the partition or each individual job on the partition or

different.

- i. As per claim 4, it has the same deficiency as claim 1.

Furthermore, it is not clear the relation between the first partition and the second partition.

- ii. As per claim 6, it has the same deficiency as claim 1.

furthermore, it is not clearly understood if "a plurality of jobs " means the total CPI of the plurality of jobs or CPI of each job in the plurality of jobs.

- iii. As per claim 8, has the same deficiency of claim 4.

- iv. As per claim 10, it has the same deficiency of claim 6.

- v. As per claim 11, it has the same deficiency of claim 4.

- vi. As per claim 16, it has the same deficiency as claim 1.

- vii. As per claim 19, it has the same deficiency of claim 4.

Appropriate correction is required.

Claim Rejections - 35 USC § 103

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which

said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

9. Claims 1, 3, 16 and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Stein et al (Stein) ("Slicing the AS/400 with logical partitioning: A How to Guide", IIBM, 1999, pages 1-218), in view of Ding et al. (Ding) (US 6,691,067).

10. As per claim 1, Stein teaches the invention substantially as claimed including a method comprising:

collecting a performance metric of a first partition in a logically-partitioned computer (Pg. 99, lines 1-5; Pg. 129, lines 29-31) ; and

wherein the expected performance metric occurs when the first partition is an only partition in the logically-partitioned computer(Pg.39, lines 2-5).

11. Stein did not teach specifically the determination whether a difference between the performance metric and an expected performance metric exceeds a threshold.

12. However, Ding teaches the determination whether a difference between the performance metric and an expected performance metric exceeds a threshold (Col.3, lines 33-34; Col. 7, lines 45-48).

13. It would have been obvious to one of an ordinary skill in the art at the time the invention was made to have combined the teaching of Stein and Ding because Ding's teaching of determining the difference between the actual performance metric and the expected performance metric would improve the monitoring the system performance and fine tune the system if necessary.

14. As per claim 3, Stein teaches the performance metric comprises processor utilization (Pg. 129, lines 29-31).

15. As per claim 16, Stein teaches a method of configuring a logically-partitioned computer, wherein the method comprises:

configuring the computer to collect a performance metric of a first partition (Pg. 44, lines 14-16; Pg. 99, lines 1-5; Pg. 129, lines 29-31); and

wherein the expected performance metric occurs when the first partition is an only partition in the logically-partitioned computer(Pg.39, lines 2-5).

16. Stein did not specifically teach configuring the computer to determine whether a difference between the performance metric and an expected performance metric exceeds a threshold.

17. However, Ding teaches configuring the computer to determine whether a difference between the performance metric and an expected performance metric

exceeds a threshold (Col.3, lines 33-34; Col. 7, lines 45-48).

18. As per claim 18, it is the configuring method claim of the method claim 3.

Therefore, it is rejected under the same rational.

19. Claims 2 and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Stein et al (Stein) ("Slicing the AS/400 with logical partitioning: A How to Guide", IBM, 1999, pages 1-218), in view of Ding et al. (Ding) (US 6,691,067) and further in view of Stephens et al. (Stephens) ("Instruction level profiling and evaluation of IBM RS/6000", ACM, 1991, Pages 180-189).

20. As per Claim 2, Stein Teaches collecting the performance metric for the first partition during an interval (Pg. 115, lines 1-5; Pg. 117, lines 4-5; Pg.129, lines 29-31).

21. Neither Stein nor Ding teaches that the performance metric comprises an average number of cycles per instruction.

22. However, Stephens teaches that the performance metric comprises an average number of cycles per instruction (Pg. 188, Col.2, lines 27-32)

23. It would have been obvious to one of an ordinary skill in the art at the time the invention was made to have combined the teaching of Stein, Ding and

Stephens because Stephens's teaching of using CPI as a performance metric would improve the determination of how efficient the system is executing the instructions.

24. As per claim 17, it is the configuring method claim of the method claim 2 above. Therefore, it is rejected under the same rational.

25. Claims 4, 5, 19 and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Stein et al (Stein) ("Slicing the AS/400 with logical partitioning: A How to Guide", IBM, 1999, pages 1-218), in view of Ding et al. (Ding) (US 6,691,067) and further in view of Dawkins et al.(Dawkins)(US 6,820,207).

26. As per claim 4, neither Stein nor Ding shutting down a second partition in the logically-partitioned computer if the determining of whether a difference between the performance metric and an expected performance metric exceeds a threshold is true.

27. However, Dawkins teaches shutting down a second partition in the logically-partitioned computer if the determining of whether a difference between the performance metric and an expected performance metric exceeds a threshold is true (abs, lines 3-8, Col.9, lines 40-45).

28. It would have been obvious to one of an ordinary skill in the art at the time the invention was made to have combined the teaching of Stein, Ding and Dawkins because Dawkins's teaching of shutting down the second partition would improve the system performance by not over utilizing the CPU.

29. As per claim 5, Dawkins teaches suspending a job in the second partition in the logically-partitioned computer if the determining of whether a difference between the performance metric and an expected performance metric exceeds a threshold is true (Col. 9, lines 47-50).

30. As per claim 19, it is the configuration method of the method claim of the method claim 4. Therefore, it is rejected under the same rational.

31. As per claim 20, it is the configuration method of the method claim of the method claim 5. Therefore, it is rejected under the same rational.

32. Claims 6, 7, 10 and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Stein et al (Stein) ("Slicing the AS/400 with logical partitioning: A How to Guide", IBM, 1999, pages 1-218), in view of Stephens et al. (Stephens) ("Instruction level profiling and evaluation of IBM RS/6000", ACM, 1991, Pages 180-189).

33. As per claim 6, Stein teaches an apparatus comprising: means for collecting a performance metric of a plurality of jobs in a first partition in a logically-partitioned computer (fig. 8; Pg. 99, lines 1-5; Pg. 129, lines 29-31)

34. Stein did not specifically teach means for calculating a difference between the performance metric and an expected performance metric of each of the plurality of jobs, wherein the expected performance metric is based on a type of the plurality of jobs; and means for reporting the difference.

35. However, Stephens teaches means for calculating a difference between the performance metric and an expected performance metric of each of the plurality of jobs, wherein the expected performance metric is based on a type of the plurality of jobs; and means for reporting the difference (Fig.1; Table 4, CPI; Page 188, lines 27-32).

36. It would have been obvious to one of an ordinary skill in the art at the time the invention was made to have combined the teaching of Stein and Stephens because Stephens's teaching of using CPI as a performance metric would improve the determination of how efficient the system is executing the instructions.

37. As per claim 7, it is the apparatus claim of the method claim 2 above.

Therefore, it is rejected under the same rational.

38. As per claim 10. Stein teaches a signal-bearing medium encoded with instructions, wherein the instructions when executed in a first partition in a logically-partitioned computer (Pg. 44, lines 2-3, Pg. 44, lines 14-16).

39. Stein did not teach collecting an average number of cycles per instruction of a plurality of jobs and calculating a difference between the average number and an expected number of cycles per instruction of each of the plurality of jobs, wherein the expected number of cycles per instruction is based on a type of the plurality of jobs; and reporting the difference.

40. However, Dawkins teaches collecting an average number of cycles per instruction of a plurality of jobs (table 4) and calculating a difference between the average number and an expected number of cycles per instruction of each of the plurality of jobs, wherein the expected number of cycles per instruction is based on a type of the plurality of jobs; and reporting the difference (Page 188, lines 27-32; table 5).

41. As per claim 13, Stein teaches a computer system having a plurality of logical partitions (Pg. 40, line 5; Pg. 44, line 5), the computer system comprising:
a processor (Pg. 44, lines 8-10); and

memory encoded with instructions, wherein the instructions when executed on the processor (Pg. 44, lines 2-3; Pg.44, lines 11-13).

Stein teach performance metric occurs in one or more partitions (Pg. 44, line 5; Pg. 99, lines 1-5; Pg. 129, lines 29-31).

42. Stein did not teach collecting an average number of cycles per instruction of a first partition; and determining whether a difference between the average number of cycles per instruction and an expected number of cycles per instruction exceeds a threshold, wherein the expected number of cycles per instruction occurs when the first partition is an only partition in the computer system.

43. However, Stephens teaches collecting an average number of cycles per instruction of a first partition; and determining whether a difference between the average number of cycles per instruction and an expected number of cycles per instruction exceeds a threshold, wherein the expected number of cycles per instruction.

44. Claims 8, 9, 11, 12, 14 and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Stein et al (Stein) ("Slicing the AS/400 with logical partitioning: A How to Guide", IBM, 1999, pages 1-218), in view of Stephens et al. (Stephens) ("Instruction level profiling and evaluation of IBM RS/6000", ACM, 1991, Pages 180-189) and further in view of Dawkins et al. (Dawkins Pg. 99,

lines 1-5; Pg. 129, lines 29-31) (US 6,820,207).

45. As per claim 8, neither Stein nor Stephens teaches means for shutting down a second partition in the logically- partitioned computer id the difference exceeds a threshold.

46. However, Dawkins teaches means for shutting down a second partition in the logically- partitioned computer id the difference exceeds a threshold (abs, lines 3-8, Col.9, lines 40-45).

47. It would have been obvious to one of an ordinary skill in the art at the time the invention was made to have combined the teaching of Stein, Stephens and Dawkins because Dawkins's teaching of shutting down the second partition would improve the system performance by not over utilizing the CPU.

48. As per claim 9, it is the apparatus claim of the method claim 5 above. Therefore, it is rejected under the same rational.

49. As per claim 11, it is the signal-bearing medium claim of the method claim 4 above. Therefore, it is rejected under the same rational.

50. As per claim 12, it is the signal-bearing medium claim of the method claim 5 above. Therefore, it is rejected under the same rational.

51. As per claim 14, it is the computer system claim of the method claim 4 above. Therefore, it is rejected under the same rational.

52. As per claim 15, it is the computer system claim of the method claim 5 above. Therefore, it is rejected under the same rational.

Conclusion

53. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

TITLE: System and method for CPI scheduling on SMT processors (US 2005/0086660 A1).

TITLE: ("An assembly-level execution- Time model for pipelined architectures", IEEE, 2001, Pages 195, 200).

TITLE: ("Performance analysis and its impact on design", IEEE, 1998, Pages 41-49

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Caroline Arcos whose telephone number is 571-270-3151. The examiner can normally be reached on Monday-Thursday 7:00 AM to 5:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Meng-Ai An can be reached on 571-272-3756. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Patent examiner

Caroline Arcos



MENG-AI AN
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2100